**Before the**
**FEDERAL COMMUNICATIONS COMMISSION**
**Washington, D.C. 20554**

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| In the Matter of | ) | |
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| Amendment of Part 90 of the Commission's Rules | ) | WP Docket No. 07-100 |
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## REPLY COMMENTS OF THE ASSOCIATION OF AMERICAN RAILROADS

The Association of American Railroads ("AAR") hereby submits these reply comments in response to the *Sixth Further Notice of Proposed Rulemaking* in the above-captioned proceeding ("*Sixth FNPRM*"),[1] wherein the Federal Communications Commission ("FCC" or "Commission") seeks input on revising service and technical rules in the 4940-4990 MHz band ("4.9 GHz band"). AAR agrees with the large number of commenters that support more expansive and intensive use of the 4.9 GHz band by adding co-primary status for railroads and other critical infrastructure industries ("CII").[2] More specifically, AAR generally supports the band plan submitted by the National Public Safety Telecommunications Council ("NPSTC") but recommends that CII entities be granted immediate co-primary status on all channels.[3] Expanding eligibility to CII entities will increase use of the 4.9 GHz band, improve mission-

[1] *Amendment of Part 90 of the Commission's Rules*, Sixth Further Notice of Proposed Rulemaking, WP Docket No. 07-100, FCC 18-33 (rel. Mar. 23, 2018) ("*Sixth FNPRM*"); *see also Amendment of Part 90 of Commission's Rules*, Public Notice, WP Docket No. 07-100 *et al.*, DA 18-468 (rel. May 7, 2018).

[2] AAR supports using the definition for CII found in section 90.7 of the Commission's rules: "State, local government and non-government entities, including utilities, railroads, metropolitan transit systems, pipelines, private ambulances, volunteer fire departments, and not-for-profit organizations that offer emergency road services, providing private internal radio services provided these private internal radio services are used to protect safety of life, health, or property; and are not made commercially available to the public." 47 C.F.R. § 90.7.

[3] NPSTC, 4.9 GHz NPSTC Plan Recommendations Final Report, WP Docket No. 07-100 *et al.* (filed Oct. 24, 2013) ("NPSTC Plan").

critical applications and services, drive innovation, reduce costs, and improve interoperability between public safety and CII entities' communications systems. The public interest will be served by the myriad safety and security applications that railroads and other CII entities will be able to support with this additional spectrum.

## I. BACKGROUND

AAR is a voluntary non-profit membership organization whose freight railroad members operate 83 percent of the line-haul mileage, employ 95 percent of the workers, and account for 97 percent of the freight revenues of all railroads in the United States.[4] AAR's members also include certain passenger railroads that operate intercity passenger trains and provide commuter rail service. Radio communications systems are a vital component of the railroad industry's operations, and much of the radio use by the rail industry is for safety-related purposes.

The 4.9 GHz band is currently designated for primary use only by public safety organizations.[5] The *Sixth FNPRM* highlights the concern that the 4.9 GHz band has "fallen short of its potential," observing that of the "nearly 90,000 public safety entities eligible under [the Commission's] rules to obtain licenses in the band, there were only 2,442 licenses in use in 2012 and only 3,174 licenses in use nearly six years later in 2018."[6]

Commenters have highlighted problems contributing to underutilization of the 4.9 GHz band, including the limited size of the market for 4.9 GHz operable equipment, comprised of devices that are more specialized and expensive than similar equipment operating on more

[4] Additional information on AAR is available at https://www.aar.org/.

[5] *4.9 GHz Band Transferred from Federal Government Use*, Second Report and Order and Further Notice of Proposed Rulemaking, 17 FCC Rcd 3955 ¶ 23 (2002).

[6] *Sixth FNPRM* ¶ 1.

widely used bands.[7] Moreover, the band's jurisdictional geographic licensing system, coupled with the lack of required (but permitted) regional planning or frequency coordination, has resulted in the FCC's Universal Licensing System containing limited amounts of documentation concerning receiver locations of point-to-point and point-to-multipoint links, output power, antenna gain, and antenna height.[8] The lack of detailed information has rendered frequency coordination and interference mitigation a difficult and time-intensive exercise.

Seeking to alleviate these problems, the NPSTC Plan was submitted in 2013 as a set of proposals intended to address key issues and increase use of the 4.9 GHz band. Importantly, the NPSTC Plan recommends that the Commission should expand 4.9 GHz band eligibility to CII entities, which would constitute a major step towards more intensive use of the band. The NPSTC Plan also proposes designating a certified frequency coordinator for licensing and using the FCC's Universal Licensing System to compile all of the information that is necessary for effective frequency coordination.[9] Taken together, the proposals put forward by the NPSTC Plan should make the 4.9 GHz band more attractive for broader public safety use and generate new applications and utilization by CII entities, including the railroads.

## II. DISCUSSION

AAR strongly supports expanding 4.9 GHz band eligibility to CII entities on a co-primary basis. Both freight and passenger railroads will be able to take advantage of a number of

[7] *See*, *e.g.*, APCO International 4.9 GHz Task Force Report, WP Docket No. 07-100 *et al.*, at 12 (filed Sept. 28, 2015).

[8] NPSTC Plan at 3-4.

[9] *Id*. at 9, 11-12. AAR agrees with the Utilities Technology Council that "the Commission should consider allowing non-public safety coordinators to conduct frequency coordination in the 4.9 GHz band, if problems arise (e.g. delays, backlogs, or discriminatory treatment of non-public safety applications, including pricing or processing)." Comments of the Utilities Technology Council *et al.*, WP Docket No. 07-100, at 26-27 (filed July 6, 2018) ("UTC Comments").

important safety-related uses for the band. Expanding eligibility provides an opportunity to create public-private arrangements between public safety and CII entities that will foster collaborative engagement on key safety issues.[10] Moreover, expanding access to CII will promote a more robust market for equipment, which will create scale, drive innovation, and reduce equipment costs.[11]

### A. The 4.9 GHz band will enable valuable applications for railroads that will improve safety and security of operations.

AAR members rely upon a mix of licensed and unlicensed spectrum in a variety of bands for an increasing number of mission-critical communications systems. Among other things, these systems are used for radio dispatch, positive train control, phone systems, train signaling, remote switching of tracks, relaying critical telemetry data, and routing of trains through rights-of-way, depots, and train yards. The 4.9 GHz band, with higher power limits than unlicensed Wi-Fi, offers a strong balance of coverage, capacity, and throughput that would be particularly well suited for continuous remote monitoring and video surveillance tools,[12] as described below.

Railroads could utilize the 4.9 GHz band for many wireless video applications, such as the transmission of video signals for remote monitoring.[13] For example, the band could be used

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[10] *See* UTC Comments at 13 (citing Federal Communications Commission, *Connecting America: The National Broadband Plan*, 252, 254 (rel. Mar. 16, 2010)) ("In 2010, the Commission recognized that utilities and public safety have similar communications requirements and that synergies could be achieved by combining their resources together, just as many utilities and public safety entities had partnered to build statewide shared systems.").

[11] Comments of Southern Company Services, Inc., WP Docket No. 07-100, at 8 (filed July 6, 2018) ("SCS Comments"); *see also Sixth FNPRM* ¶ 71 (seeking comment on whether CII use of the 4.9 GHz band would reduce equipment costs).

[12] *See* UTC Comments at 14.

[13] The 4.9 GHz band is used to carry multiple streams of video for public safety and law enforcement operations across the country, including in Austin, TX, Los Angeles, CA, New York, NY, Oregon, and Tennessee. *See* Comments of NPSTC, WP Docket No. 07-100, at 9-11 (filed July 6, 2018) ("NPSTC Comments").

for visual (i.e., in-person) inspections of tracks and track crossings, which railroads are required to perform at least once a month.[14] Given the thousands of crossings and miles of tracks that must be inspected, this is a costly and time-consuming process. The benefits of remote video monitoring are two-fold: monitoring can be done on an ongoing basis, rather than once per month, and the costs associated with monitoring can be reduced. Ongoing monitoring would be especially useful for ensuring the safety and security of infrastructure,[15] cargo, and international operations.

In freight yards, the safe loading, unloading, and movement of rail cars are complex endeavors requiring a wide range of communications links to locomotives, ground crews, and sensors that assess the health of rolling stock. Due to the large size of yards and the density of communications, primary reliance on unlicensed Wi-Fi is often not sufficient. The higher power levels allowed for 4.9 GHz would provide better signal propagation and improved utility. For example, improved and increased use of video surveillance would better protect rail yards against intruders and, in particular, would enable better monitoring of rail cars carrying dangerous materials.

### B. CII eligibility should not be conditioned on providing "public safety services" as defined in Section 337(f)(1)(A).

The *Sixth FNPRM* seeks comment on whether CII entry into the band should be conditioned on providing "public safety services," as defined in section 337(f)(1)(A).[16] AAR agrees with commenters that raised concerns about the difficulties that would arise from limiting

[14] 49 C.F.R. §§ 213.233(b)(3), 213.235(a).

[15] Rail bridges constitute some of the most vulnerable segments of railroad trackage. Remote monitoring would allow railroad personnel to assess the structural integrity of bridges, such as identifying tracks that are buckled or out of alignment, or damage caused by fire or vandalism.

[16] *Sixth FNPRM* ¶ 71; 47 U.S.C § 337(f)(1)(A).

CII use of the 4.9 GHz band to "public safety services."[17] Such a limitation is an arbitrary distinction without basis in the law and would unnecessarily limit CII use of the band.

Congress expressly identified the operations of CII entities as sufficiently important to be eligible for exemption from the competitive bidding requirements of section 309(j).[18] Limiting CII use of the 4.9 GHz band to "public safety services" would be inconsistent with Congress's express recognition of the important, quasi-public safety functions that CII entities serve.

Discussing why Congress had exempted railroads and other CII entities from competitive bidding requirements, the FCC rightly observed that CII operations have "little or no margin for error" and "can take on an almost quasi-public safety function" during emergencies.[19] Stated another way, a large portion of the safe operation of CII entities' day-to-day business has a substantial safety component.[20] As a consequence, drawing arbitrary distinctions as to which CII operations qualify would be resource intensive and unnecessarily limit the economies of scale that broader CII use would bring to the band.

Moreover, limiting CII use of the 4.9 GHz band to "public safety services" would serve no useful purpose, as CII and public safety entities have demonstrated a commitment to safety-enhancing collaboration. The Commission has long recognized that interoperability between CII

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[17] *See* Comments of the American Petroleum Institute and the Energy Telecommunications and Electrical Association, WP Docket No. 07-100, at 4 (filed June 21, 2018) ("Joint Comments of API and ENTELEC"); SCS Comments at 6.

[18] *See* H.R. Conf. Rep. No. 105-217, 105th Cong., 1st Sess., at 572 (1997) ("Second, the exemption from competitive bidding authority for 'public safety radio services' includes 'private internal radio services' used by utilities, railroads, metropolitan transit systems, pipelines, private ambulances, and volunteer fire departments. Though private in nature, the services offered by these entities protect the safety of life, health, or property and are not made commercially available to the public.").

[19] *See Implementation of Sections 309(j) and 337 of the Communications Act of 1934, as Amended*, Report and Order and Further Notice of Proposed Rule Making, 15 FCC Rcd 22709 ¶ 76 (2000); *see also* 47 U.S.C § 309(j)(2)(A).

[20] *See* SCS Comments at 6-7.

and public safety communications systems is important for both emergency and non-emergency situations alike.[21] The success of the 800 MHz band has demonstrated that sharing and coordination between and among CII and public safety entities can be highly effective.

### C. The Commission should immediately grant CII access to all channels in the 4.9 GHz band.

The *Sixth FNPRM* seeks comment on whether CII entities should be provided (1) immediate co-primary access to Channels 6 and 7 during the first three years and establish a notice procedure for CII access to the remainder of the band during the three-year period (as proposed by the NPSTC Plan)[22] or (2) immediate co-primary status on Channels 12 and 13, which would be coupled with access to Channels 14-18.[23] AAR supports broader CII use of the 4.9 GHz band and agrees with Southern Company Services that

> [i]f a more productive use is to be made of this spectrum[,] it makes little sense to further constrain CII access to the band. Allowing CII access across the band will help reduce equipment costs for the benefit of all users and, more importantly, will give CII the flexibility to use this spectrum in furtherance of public safety, health and welfare.[24]

With required frequency coordination, CII entities will be able to work together with public safety organizations to maximize use without endangering public safety's utilization of the band. AAR disagrees with American Petroleum Institute's proposal of setting aside 20 megahertz of the 4.9 GHz band for robotics, aerial, and unmanned aerial systems.[25] While there are surely a number of such applications that would benefit from a 20 megahertz set-aside,

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[21] *The 4.9 GHz Band Transferred from Federal Government Use*, Memorandum Opinion and Order and Third Report and Order, 18 FCC Rcd 9152 ¶ 22 (2003).

[22] NPSTC Plan at 6.

[23] *Sixth FNPRM* ¶ 72.

[24] SCS Comments at 11.

[25] Joint Comments of API and ENTELEC at 2.

restricting 40 percent of the band to such uses would limit the band's flexibility and run the risk of underutilization.

### D. Expanding eligibility to broader commercial use will jeopardize mission-critical operations.

At this time, the 4.9 GHz band should not be redesignated for commercial use, in whole or in part, even on a secondary basis. AAR agrees with commenters that have raised concerns that expanding eligibility for the 4.9 GHz band to commercial use would be incompatible with the vital missions entailed by public safety and CII use of the band.[26]

AAR also agrees with NPSTC's concerns that opening the band to commercial use creates an unacceptably high risk to "critically important security, reliability and availability features."[27] The desirability of the 4.9 GHz band is in part tied to these features, and opening the band to commercial use undermines these benefits.

### E. Higher power limits and wider channels will benefit public safety and CII use of the band.

Higher power operations will support longer links and wider channels, improving coverage and adding capacity. Monitoring rail infrastructure may require video surveillance of assets located several miles away. Increasing power limits, especially for rural areas, will reduce the number of links needed for transmission. AAR agrees with the Commission's proposed maximum EIRP levels of 65.15 dBm for point-to-point and 55.15 dBm for point-to-multipoint.[28]

AAR also agrees with proposals to increase the channel aggregation limit from 20

[26] *See* SCS Comments at 13-14; UTC Comments at 19-21; Comments of Nokia, WP Docket No. 07-100, at 4 (filed July 6, 2018).

[27] NPSTC Comments at 19.

[28] *See Sixth FNPRM* ¶ 57; *see also* UTC Comments at 23.

megahertz to at least 40 megahertz.[29] Expanding the potential channel width provides a level of flexibility that lays the foundation for new, innovative uses which can lead to greater spectral efficiency and lower-cost equipment.

## III. CONCLUSION

AAR and its members support the Commission's efforts to improve flexibility, efficiency, and access in the 4.9 GHz band. Extending co-primary status to railroads and other critical infrastructure industries will go a long way towards intensifying use of the band. AAR believes that there will be concomitant benefits for public safety users through increased innovation and reduced equipment costs. Expanding eligibility to CII entities will increase utilization of the 4.9 GHz band, create scale, drive innovation, reduce costs, and improve interoperability between public safety and CII entities' communications systems.

Respectfully submitted,

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[29] *See id*. ¶ 8; *see also* UTC Comments at 24; Comments of APCO International, Inc., WP Docket No. 07-100, at 9 (filed July 6, 2018).